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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/915,764

07/27/2001

Karl-Anton Starz

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EXAMINER

WILLS, MONIQUE M

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

06/17/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 09/915,764	Applicant(s) STARZ ET AL.	
	Examiner Monique M. Wills	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-5,9-12 and 15-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,9-12 and 15-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

This Office Action is responsive to the Amendment filed February 19, 2008. The rejections are maintained as follows:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 9-13 & 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fischer DE 196 11 510 in view of Goller et al., U.S. Patent 4,185,131. and further in view of Cambell et al. U.S. Pub. 2001/0009733

With respect to claims 1, 9 & 13, Fischer teaches an ink for producing a membrane electrode assembly for a fuel cell comprising 3.1wt% Pt/C catalyst, 30.9wt% of a 5% strength ionomer solution in 90 parts isopropanol and 10 parts water, 37.2 wt% glycerine, 24.8wt % water, 2.5 wt% tetrabutylammonium hydroxide and 1.5 wt% of a pore former. The water content of the ink is 27.7 wt% in total. See Applicant's instant disclosure bridging pages 2 & 3. With respect to claim s 10-12, the ink comprises a

Art Unit: 1795

Pt/C catalyst which, according to the instant specification on page 7, lines 2-3 is platinum powder. In re claims 16-18, the polymer electrolyte membrane is coated with the ink in accordance with the screen printing process on page 3 of the instant disclosure.

Fischer is silent to: containing a linear dialcohol with a flash point higher than 100°C and being present in the ink in a concentration between 1 and 50 wt%, with respect to the weight of water (claims 1, 2 & 15); the linear alcohol being a dihydric alcohol wherein hydroxyl groups are not adjacent to each other (claim 3); an alcohol chain structure that is aliphatic-CH₂ groups, optionally with oxygen atoms between said CH₂ groups (claim 4); or a dialcohol selected from the group consisting of ethylene glycol, diethylene glycol, propylene glycol, dipropylene glycol or butanediol (claim 5).

However, Goller teaches the functional equivalence of glycerin and ethylene glycol as organic solvent inking vehicles for fuel cell constituents (col. 5, lines 5-20).

Campbell teaches that it is well known in the art to employ aqueous ionomer solutions as catalysts inks (par. 20).

Therefore, the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the instant invention was made because even though Fischer does not teach ethylene glycol, Goller teaches that ethylene glycol and glycerine are art recognized equivalent materials for use as organic solvent inking vehicles, and therefore one having ordinary skill in the art would have substituted one organic solvent for the other.

With respect to claim 1, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to employ an aqueous ionomer solution of Cambell in the ink if Fischer in view of Goller, in order to improve dispersion capabilities of the catalytic ink. The skilled artisan recognizes that uniform catalyst coating provides homogenous utilization of the electrode across the entire electrode surface.

In re claim 1, it is reasonable to expect that the ethylene glycol of Goller is a linear dialcohol with a flash point higher than 100°C, because Fischer in view of Goller employs the same organic solvent as the instant claims. Additionally, “products of identical chemical composition can not have mutually exclusive properties.” A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. In re Spada, 911 F.2d 705, 709, 15 USPQ 2d 1655, 1658.

As to the limitation in claims 1, 2, 15 & 19, with regard to the organic solvent being present between 1 and 50-wt% by weight of water, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ said water concentration, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CPA 1980). The skilled artisan recognizes that the amount of water directly affects the dispersion ability of the ionomer in the ink.

In re claims 3 & 4, according to the instant disclosure bridging pages 4 & 5, ethylene glycol is a dihydric alcohol with hydroxyl groups not adjacent to each other with a chain structure that is aliphate-CH₂ groups. Additionally, “products of identical

Art Unit: 1795

chemical composition can not have mutually exclusive properties.” A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. In re Spada, 911 F.2d 705, 709, 15 USPQ 2d 1655, 1658.

Response to Arguments

Applicant contends that Fischer ,Goller and Cambell alone or in combination do not teach an aqueous ink with a composition of 1 to 25 wt% of water. However, as stated above, it would have been obvious to one of ordinary skill in the art to employ said water concentration, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CPA 1980). The skilled artisan recognizes that the amount of water directly affects the dispersion ability of the ionomer in the ink. Furthermore, absent unexpected ameliorative results, the weight percents of the ink are adjustable through routine experimentation to develop superior ink characteristics.

Conclusion

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Monique Wills whose telephone number is (571)

272-1309. The Examiner can normally be reached on Monday-Friday from 8:30am to 5:00 pm.

If attempts to reach Examiner by telephone are unsuccessful, the Examiner's supervisor, Patrick Ryan, may be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Monique M Wills/
Examiner, Art Unit 1795

/PATRICK RYAN/
Supervisory Patent Examiner, Art Unit 1795

Application/Control Number: 09/915,764
Art Unit: 1795

Page 7